# ART. VIII.—THE IMPORTANCE OF THE POSITION OF THE FISSURE OF ROLANDO, AS AN INDEX TO THE INTELLIGENCE OF ANIMALS.

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IN studying the external configuration of the brain, I was struck some time since, by the variable position of the fissure of Rolando in the brains of different persons when compared together.

This fissure has acquired universal importance latterly, in the progress of research into the localization of function in the cerebral cortex. I began, accordingly, a study of the position of this fissure in different classes of animals, as well as in different specimens of the human brain, the results of which are given in the following paper.

In all animals lower than man, the sulcus Rolando or its homologue, occupies a region far in front, and as the frontal lobes are developed this fissure is thrown backwards toward the parieto-occipital part of the brain. I have noticed that in the brains of some idiots the position is similar to that observed in dogs, baboons and anthropoid apes, and the more abject has been the condition of the imbecility, the farther forward the situation of the sulcus.

The simplest method for examination is as follows: Divide the brain antero-posteriorly (on an imaginary semicircle) into ten parts from the orbital to the occipital extremities (exclusive of basilar measurements), along the upper arch of the longitudinal fissure. The summit of the sulcus Rolando ending in or near the great longitudinal fissure will be found to be six to six and one-half removes from the orbital extremity, four to three and one-half from the occipital in the average human brain. It is usually farther back on the left than on the right hemisphere.

Other methods may be suggested, but this is the least

The estimated position of the proposed line projected through the medulla axis may afford a rough means of ascertaining the relative degrees of mentality indicated by fossil as well as by later crania. In this way it would appear that the megatherium was beneath the pterodactyl. But so great is the range of this matter of comparative intelligences and so varied are the views of authors that we can do no more than to refer to them in this connection. The later works on this subject that we have seen are by George J. Romanes,* and W. Lauder Lindsay.† The latter attempts to outline the subject of mind in the lower animals, and to illustrate their possession of the higher mental faculties as they occur in man.

* Nineteenth Century, 1878. Dublin Lecture, British Association, Aug. 16, 1878.

† *Mind in the Lower Animals in Health and Disease.* Appleton & Co.